In Re Patent Application of: **LEAMING**	)) Examiner: **E. UNELUS**
	)
Serial No. **10/829,007**	) Technology Center: **2100**
	)
Filing Date: **April 21, 2004**	) Art Unit: **2181**
	)
For: **SMART CARD WITH SELF-** **RECONFIGURATION FEATURES AND** **RELATED METHODS**	) Attorney Docket No.) **02-AU-090 (52040)**))

APPELLANTS' APPEAL BRIEF

MS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is Appellant's Appeal Brief together with the requisite $510 large entity fee for filing a brief. If any additional extension and/or fee is required, authorization is given to charge Deposit Account No. **01-0484**.

(1) Real Party in Interest

The real party in interest is STMICROELECTRONICS, INC., assignee of the present application, as recorded at reel 015253, frame 0489.

(2) Related Appeals and Interferences

At present, there are no related appeals, judicial proceedings, or interferences.

(3) Status of the Claims

Claims 1, 4-10, 13-19, 22-28 and 31-35 are pending in the application, stand rejected, and are all being appealed herein.

Claims 2, 3, 11, 12, 20, 21, 29, 30 and 36-41 have been canceled and are not appealed herein.

(4) Status of the Amendments

All amendments have been entered and there are no further pending amendments. A copy of the claims involved in this appeal is attached hereto as Appendix A.

(5) Summary of the Claimed Subject Matter

Independent Claim 1 is directed to an integrated circuit (26) for a smart card (24) comprising a transceiver (30) and a processor (31) for communicating with a host device (21) over a system bus via the transceiver. The processor (31) is for providing at least one default descriptor to the host device (21), cooperating with the host device to perform an enumeration based upon the at least one default descriptor, and providing at least one alternate descriptor to the host device and cooperating with the host device to perform a new enumeration based thereon

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based upon allocations of system bus bandwidth to other devices communicating with the host device over the system bus. (Specification: page 9, lines 3-11 (paragraph 0025); page 11, line 23 through page 18, line 24 (paragraphs 0031 through 0047); and FIGS. 1 and 2, reproduced below).
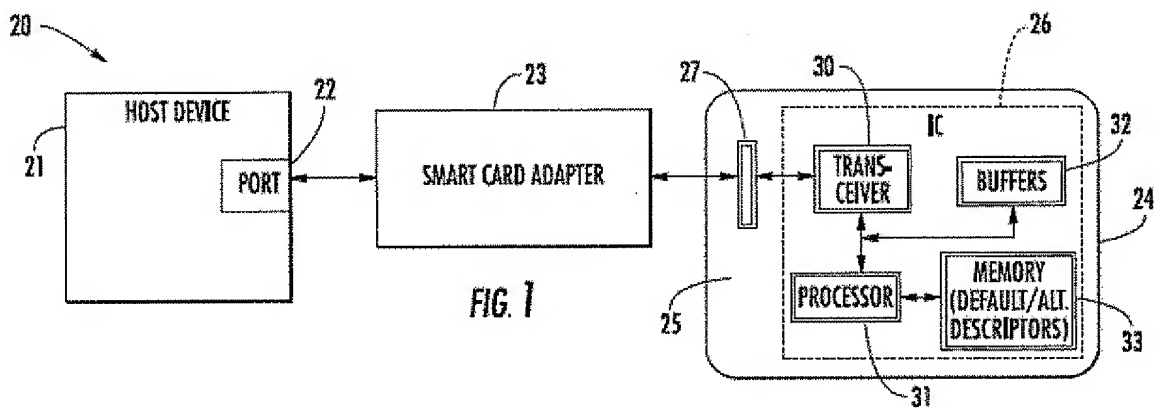

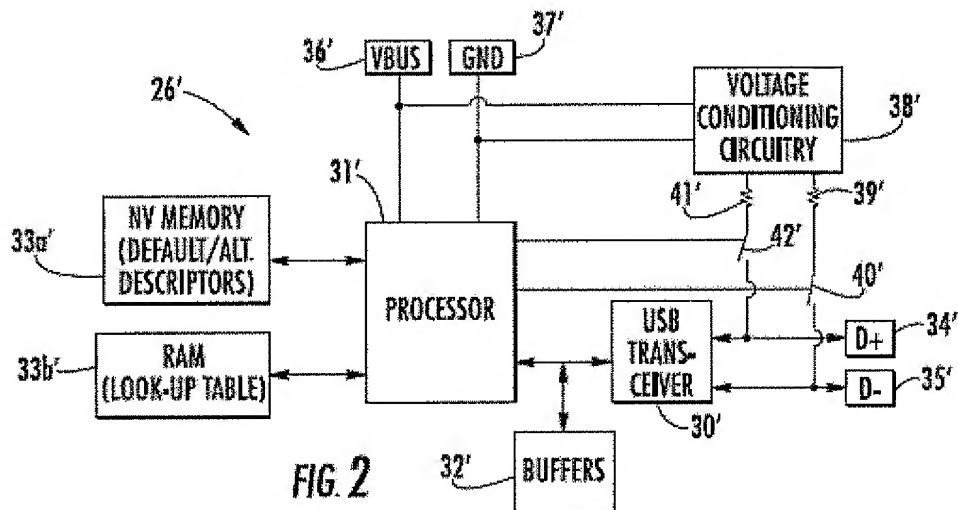FIG. 1 of the Present Application

FIG. 2 of the Present Application

Independent Claim 10 is directed to a smart card (24) comprising a smart card body (25) and an integrated circuit (26) carried by the smart card body and including a transceiver (30) and a processor (31) for communicating with a host device (21) over a system bus via the transceiver. The processor (31) is for providing at least one default descriptor to the host device (21), cooperating with the host device (21) to perform an enumeration based upon the at least one default descriptor, and providing at least one alternate descriptor to the host device and cooperating with the host device to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices communicating with the host device over the system bus. (Specification: page 9, lines 3-11 (paragraph 0025); page 10, line 24 through page 11, line 6 (paragraph 0029); page 11, line 23 through page 18, line 24 (paragraphs 0031 through 0047); and FIGS. 1 and 2, reproduced above).

Independent Claim 19 is directed to a smart card system (20) comprising a host device (21) and associated system bus, a smart card adapter (23) connected to the host device via the system bus, and a smart card (24) to be read by the smart card adapter and including a smart card body (25) and an integrated circuit (26) carried by the smart card body. The integrated circuit (26) includes a transceiver (30) and a processor (31) for communicating with the host device (21) over the system bus via the transceiver. The processor (31) is for providing at least one default descriptor to the host device (21), cooperating with the host device to perform an enumeration based upon the at least one default descriptor, and providing at least one alternate descriptor to the host device and cooperating with the host device to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices

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communicating with the host device over the system bus.
(Specification: page 9, lines 3-11 (paragraph 0025); page 10,
line 24 through page 11, line 6 (paragraph 0029); page 11, line
23 through page 18, line 24 (paragraphs 0031 through 0047); and
FIGS. 1 and 2, reproduced above).

Independent Claim 28 is directed to a method for
operating a smart card (24). The method includes providing at
least one default descriptor from the smart card (24) to a host
device (21) over a system bus, and cooperating with the host
device over the system bus to perform an enumeration based upon
the at least one default descriptor. The method further includes
providing at least one alternate descriptor to the host device
(21) and cooperating with the host device over the system bus to
perform a new enumeration based thereon based upon allocations of
system bus bandwidth to other devices communicating with the host
device over the system bus. (Specification: page 9, lines 3-11
(paragraph 0025); page 11, line 23 through page 18, line 24
(paragraphs 0031 through 0047); and FIGS. 1-4, of which FIGS. 3
and 4 are reproduced below).

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START — 50

PROVIDE DETECTION SIGNAL — 51

PERFORM ENUMERATION BASED UPON DEFAULT DESCRIPTOR(S) — 52

GENERATE LOOK-UP TABLE — 53

SYSTEM EVENT OCCURRED? — 54

SELECTIVELY REMOVE DETECTION SIGNAL — 55

GENERATE NEW LOOK-UP TABLE — 56

PROVIDE ATTACHMENT SIGNAL — 57

PERFORM NEW ENUMERATION BASED UPON ALTERNATE DESCRIPTOR(S) — 58

FINISH — 59

FIG. 3 of the Present Application

START 50'

PROVIDE DETECTION
SIGNAL 51'

PERFORM ENUMERATION BASED
UPON DEFAULT DESCRIPTOR(S)
(E.G., DEVICE, CONFIG.,
INTERFACE, AND/OR ENDPOINT) 52'

GENERATE
LOOK-UP TABLE 53'

SYSTEM UTIL.
METRIC >
THRESHOLD? 60'
YES / NO

ATTEMPTED
UNAUTHORIZED
COMM.? 61'
YES / NO

SELECTIVELY REMOVE
DETECTION SIGNAL 55'

GENERATE NEW
LOOK-UP TABLE 56'

FIG. 4

PROVIDE
ATTACHMENT SIGNAL 57'

PERFORM NEW ENUMERATION BASED
UPON ALTERNATE DESCRIPTOR(S)
(E.G., DEVICE, CONFIG.,
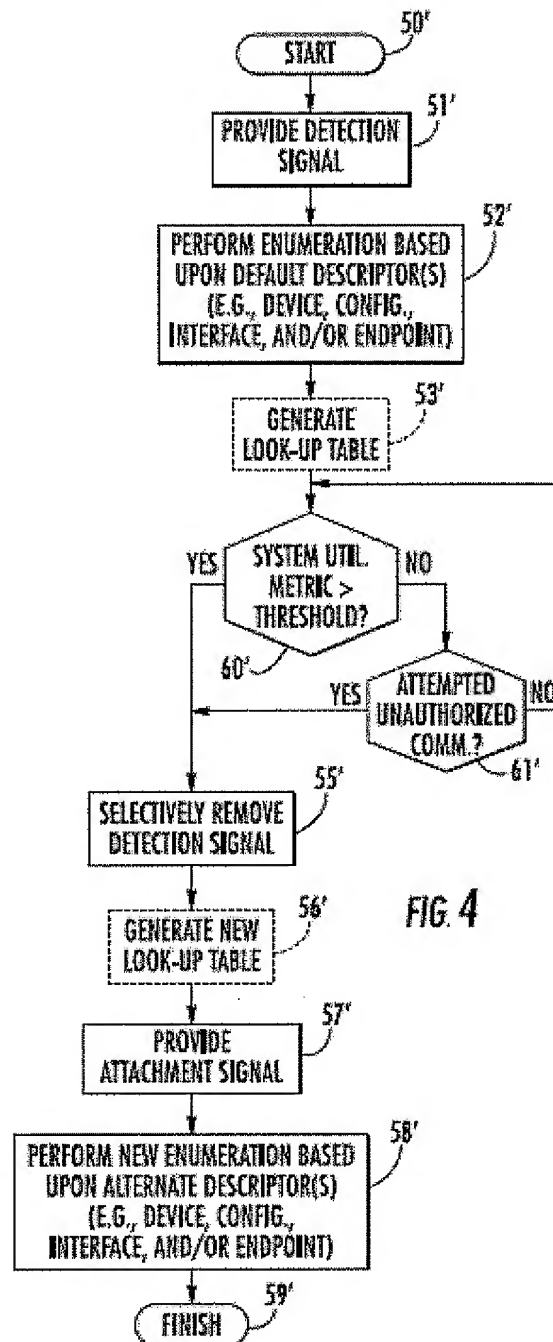INTERFACE, AND/OR ENDPOINT) 58'

FINISH 59'

FIG. 4 of the Present Application

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(6) Grounds of Rejection to be Reviewed On Appeal

Whether Claims 1, 4-10, 13-19, 22-28, and 31-35 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent Pub. No. 2005/0251596 to Maier (hereinafter "Maier") in view of U.S. Patent Pub. No. 2005/0108571 to Lu et al. (hereinafter "Lu et al.").

(7) Argument

As will be described in greater detail below, Appellant submits that the Examiner's rejections of the claims are improper. More specifically, the Examiner has mischaracterized the teachings of the prior art, and thus the proposed combination of these references fails to properly provide all of the elements recited in the claims. Accordingly, Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the Examiner and withdraw the rejections.

A.   The 35 U.S.C. §103(a) Rejection Over Maier and Lu et al.

1. Claims 1, 4-10, 13-19, 22-28, and 31-35

The Examiner rejected independent Claims 1, 10, 19, and 28 over Maier in view of Lu et al. The Examiner initially appears to indicate in the Response to Arguments section on page 2 of the Final Office Action mailed March 6, 2008 (hereinafter "Final Office Action") that Maier somehow teaches the claimed recitation of "providing at least one alternate descriptor to the host device and cooperating with the host device over the system bus to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices communicating with the host device over the system bus." For the Board's convenience,

this portion of the Final Office Action is reproduced below:

> "With respect to *based upon allocations of
> system bus bandwidth to the device
> communicating with the host device over the
> system bus*" (see fig. 1, which discloses
> communication between the device and the host
> and paragraph 0055 of Maier, which discloses,
> "in a second enumerating step ENUM2, the USB
> host enumerates the USB device. As illustrated
> in FIG. 2, only the descriptors (II) associated
> to the services (SI, S2, S3) which have been
> activated and the descriptor associated to the
> standard service (S0) will be retrieved". Maier
> discloses a negotiation flag (see par. 0041),
> which is being use as a metric. The metric
> exceeding a threshold is the negotiation flag
> moving from not active-to-active. As stated in
> paragraphs (steps) 0042 to 0049, the
> negotiation flag getting to an active state is
> exceeding a threshold. See also fig. 2 of Lu,
> which discloses multiple devices (cards 201cs)
> communicating with a host device)." Final
> Office Action, page 2.

Nonetheless, on page 5 of the Final Office Action the
following quote from the Examiner appears to correctly
acknowledge that Maier does not properly provide the above-noted
claim element, but that FIG. 2 of Lu somehow does:

> "In regards to *based upon allocations of
> system bus bandwidth to the device
> communicating with the host device over the
> system bus*", see fig. 2 of Lu, which discloses
> multiple devices (cards 201cs) communicating
> with a host device."

Accordingly, Applicant is not entirely clear where the Examiner
actually believes the above-noted recitation is properly found.
In either event, neither one of the cited references properly

provides the above-noted claim recitation, and each of the above-quoted assertions from the Final Office Action will be addressed in turn.

Turning initially to Maier, this reference is directed to a USB system including a main device and an auxiliary device arranged to co-operate with one another. The auxiliary device provides a core functionality and has descriptors associated therewith. The auxiliary device has at least one descriptor that defines a functionality that is different from the core functionality. See, e.g., paragraph 0016-0019 of Maier, and FIGS 1 and 2, which are reproduced below.
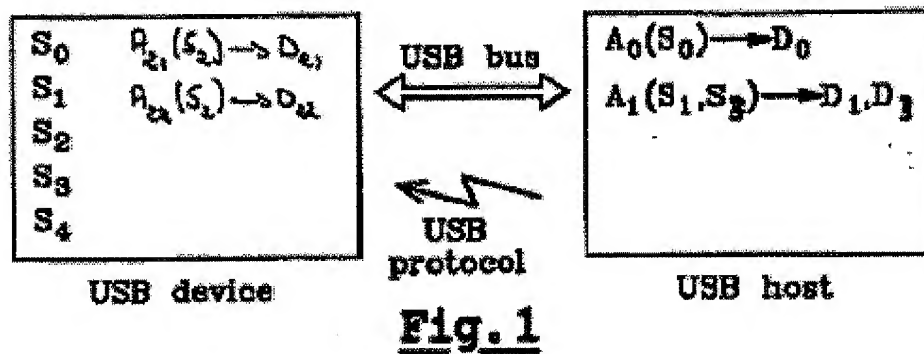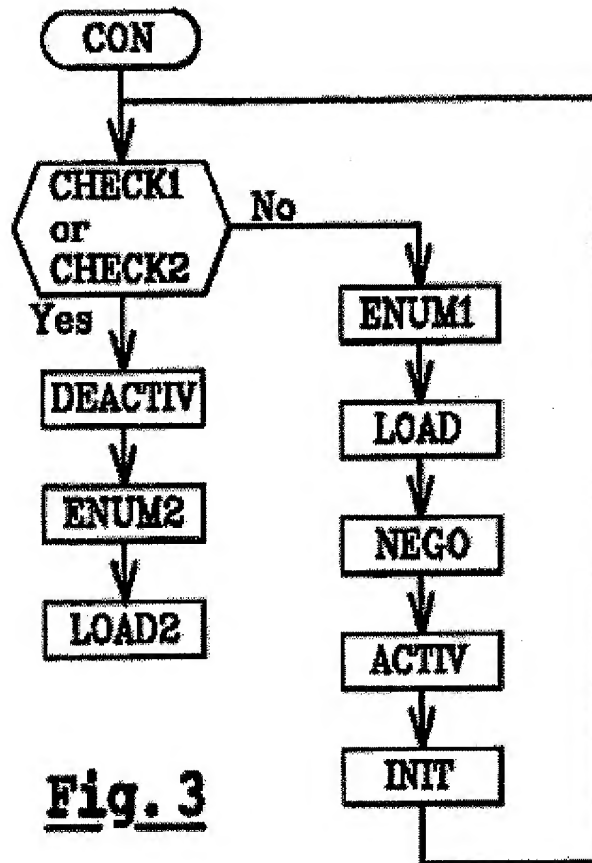

FIG. 1 of Maier

Fig. 3

FIG. 3 of Maier

In particular, the purpose of the Maier system is to
initially present a USB smart card device to a computer as a
generic mass storage device so that it will be recognized by the
computer without any special device drivers or applications
installed on the computer. Thus, by simulating a mass storage
device, a user is able to then install an application driver on
the computer so that the smart card can subsequently be used for
its desired purpose (i.e., as an internet login smart card) when
re-enumerated (i.e., re-connected) with the host computer. See,
e.g., paragraphs 0017 and 0018 of Maier, which are reproduced

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below:

> "[0017] The auxiliary device can be for, example,
> a USB device in the form of a smart card. The main
> device can be, for example, a USB host, in
> particular a computer. The smart card may comprise
> as a core functionality, for example, an internet
> login application. The functionality that is
> different from the core functionality can be, for
> example, a mass storage functionality."

> "[0018] Thanks to the invention, the Smart Card
> (USB device) is seen as a <u>mass storage</u>. It is then
> possible to install a driver and/or an application
> from the USB device <u>by simulating that the USB
> device is a mass storage</u>. The USB device can thus
> be used in any USB host, even if the driver(s) are
> not installed nor available, since the driver(s)
> is(are) available in the USB device itself. A user
> can thus use, for example, the login application
> directly from the USB device." (Emphasis added).

The USB device in the Maier system does not detach and
re-attach itself to the USB bus <u>based upon allocations of system
bus bandwidth to other devices communicating with the host device
over the system bus</u>. Rather, the reason for its detachment has
nothing to do with any other devices that are communicating with
the host, but rather is merely for the purpose of installing
additional services not originally initialized with the device.
That is, the point of this configuration is simply to make the
USB device appear as a mass storage device to the host upon re-
attachment, as noted in paragraph 0018 quoted above.

As for FIG. 1 of Maier, the Examiner states that this
figure "discloses communications between the device and the
host." Final Office Action, page 2. Even so, this does not
provide the above-noted claim recitation. With respect to
paragraph 0055, which is reproduced below, this paragraph merely

discusses performing the second enumerating step listed above so
that the different services or applications installed when the
smart card was previously connected in the mass storage mode can
be used.

> "**[0055]** in a second enumerating step ENUM2, the
> USB host enumerates the USB device. As illustrated
> in **FIG. 2,** only the descriptors (II) associated to
> the services (**S1, S2, S3**) which have been
> activated and the descriptor associated to the
> standard service (**S0**) will be retrieved." Maier,
> paragraph 0055.

That is, paragraph 0055 of Maier simply discusses the step of re-
enumerating the smart card to be an internet login card once the
appropriate application has been installed on the computer, as
noted above. Nowhere does this nor any other portion of Maier
teach that the re-enumeration is performed <u>based upon allocations</u>
<u>of system bus bandwidth to other devices communicating with the</u>
<u>host device over the system bus</u>.

Turning now to Lu et al., this reference is directed to
a smart card that is capable of acting as a network node
providing secure communication to other nodes on a network. See,
e.g., paragraph 0022 and FIG. 2 of Lu et al., which are
reproduced below

> "[0022] In a preferred embodiment, the
> invention provides an infrastructureless
> resource-constrained device, for example, a
> smart card, capable of acting as a full-fledged
> network node providing secure communication to
> other nodes on the network and in which the
> security boundary is located on the
> infrastructureless resource-constrained device.
> Such infrastructureless resource-constrained
> devices can easily be adapted so that the
> resource-constrained device can provide many of

the functions traditionally associated with
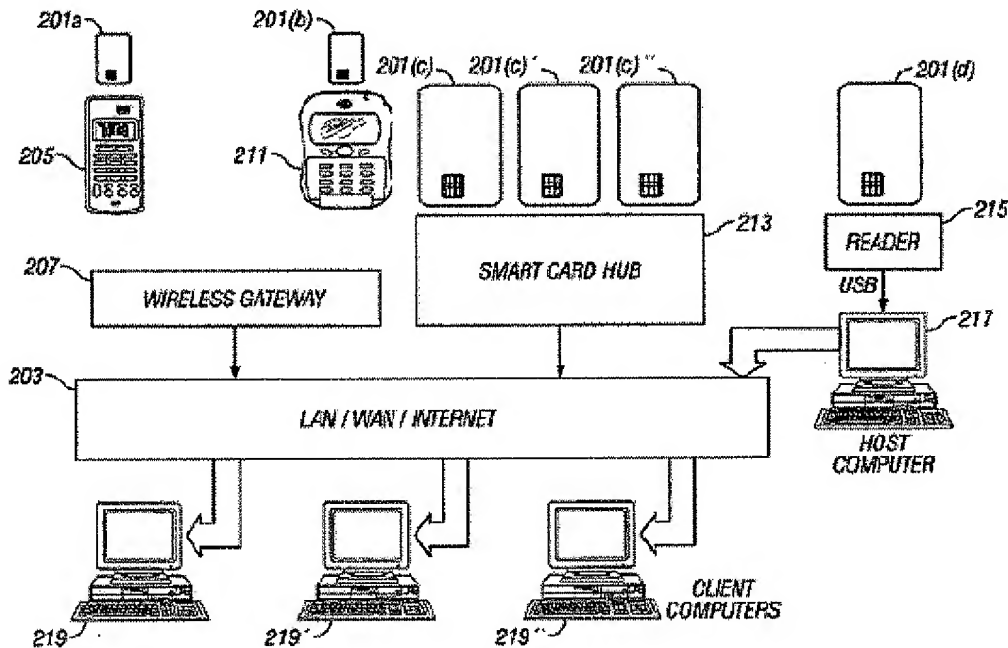full-fledged network nodes."

FIG. 2 of Lu et al.

Nonetheless, even though FIG. 2 of Lu et al. shows the
smart card connected in a network with other devices as the
Examiner notes, this still does not provide the claimed
recitation of a smart card that re-enumerates itself using an
alternate device descriptor <u>based upon allocations of system bus</u>
<u>bandwidth to other devices communicating with the host device</u>
<u>over the system bus</u>. Neither does any other portion of Lu et al.
provide this claimed element.

In stark contrast to Maier and Lu et al., the invention
recited in the above-noted independent claims advantageously
allows re-enumeration using one or more alternate descriptors to
allow more efficient utilization of limited bus bandwidth when

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other devices are sharing the same system bus, for example. See, e.g., paragraphs 0015, 0043-0044, and 0047 of the originally filed specification. The Examiner provides no finding that one of ordinary skill in the art would have recognized that applying the techniques of Maier and Lu et al. would have yielded such advantageous and improved results.

As such, neither Maier nor Lu et al. (nor any of the remaining prior art of record) properly provides the above-noted critical deficiencies recited in each of the independent claims. Moreover, there is no proper finding that one of ordinary skill in the art would have appreciated that the application of the techniques of the prior art would have yielded the advantageous results provided by the claimed devices, systems, and methods. Accordingly, a *prima facie* case of obviousness has therefore not been established. It is therefore submitted that independent Claims 1, 10, 19, and 28 are patentable. Their respective dependent claims, which recite yet further distinguishing features, are also patentable over the prior art for the same reasons and require no further discussion herein.

In re Patent Application of:
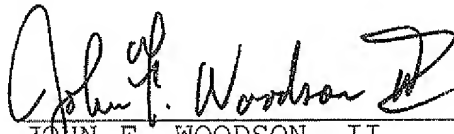**LEAMING**
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CONCLUSIONS

In view of the foregoing arguments, it is submitted that Claims 1, 4-10, 13-19, 22-28, and 31-35 are patentable over the prior art. Accordingly, the Board of Patent Appeals and Interferences is respectfully requested to reverse the earlier unfavorable decision by the Examiner.

Respectfully submitted,

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APPENDIX A - CLAIMS ON APPEAL
FOR U.S. PATENT APPLICATION SERIAL NO. 10/829,007

1.   An integrated circuit for a smart card comprising:

a transceiver; and

a processor for communicating with a host device over a system bus via said transceiver, said processor for

providing at least one default descriptor to the host device,

cooperating with the host device to perform an enumeration based upon the at least one default descriptor, and

providing at least one alternate descriptor to the host device and cooperating with the host device to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices communicating with the host device over the system bus.

4.   The integrated circuit of Claim 1 wherein the at least one alternate descriptor comprises at least one device descriptor.

5.   The integrated circuit of Claim 1 wherein the at least one alternate descriptor comprises at least one configuration descriptor.

6.   The integrated circuit of Claim 1 wherein the at least one alternate descriptor comprises at least one interface descriptor.

7.   The integrated circuit of Claim 1 wherein the at least one alternate descriptor comprises at least one endpoint descriptor.

8.   The integrated circuit of Claim 1 further comprising at least one memory connected to said processor for storing the at least one default descriptor and the at least one alternate descriptor.

9.   The integrated circuit of Claim 1 wherein said transceiver comprises a universal serial bus (USB) transceiver, and wherein said processor operates in a USB mode.

10.   A smart card comprising:

a smart card body; and

an integrated circuit carried by said smart card body and comprising

a transceiver, and

a processor for communicating with a host device over a system bus via said transceiver, said processor for

providing at least one default descriptor to the host device,

cooperating with the host device to perform an enumeration based upon the at least one default descriptor, and

providing at least one alternate descriptor to the host device and cooperating with the host device to perform a new enumeration based thereon based upon allocations of system bus bandwidth to

other devices communicating with the host device
over the system bus.

13. The smart card of Claim 10 wherein the at least
one alternate descriptor comprises at least one device
descriptor.

14. The smart card of Claim 10 wherein the at least
one alternate descriptor comprises at least one configuration
descriptor.

15. The smart card of Claim 10 wherein the at least
one alternate descriptor comprises at least one interface
descriptor.

16. The smart card of Claim 10 wherein the at least
one alternate descriptor comprises at least one endpoint
descriptor.

17. The smart card of Claim 10 wherein said integrated
circuit further comprises at least one memory connected to said
processor for storing the at least one default descriptor and the
at least one alternate descriptor.

18. The smart card of Claim 10 wherein said
transceiver comprises a universal serial bus (USB) transceiver,
and wherein said processor operates in a USB mode.

19. A smart card system comprising:
a host device and associated system bus;

a smart card adapter connected to said host device via said system bus; and

a smart card to be read by said smart card adapter and comprising a smart card body and an integrated circuit carried by said smart card body, said integrated circuit comprising

a transceiver, and

a processor for communicating with said host device over said system bus via said transceiver, said processor for

providing at least one default descriptor to said host device,

cooperating with said host device to perform an enumeration based upon the at least one default descriptor, and

providing at least one alternate descriptor to said host device and cooperating with said host device to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices communicating with said host device over said system bus.

22. The smart card system of Claim 19 wherein the at least one alternate descriptor comprises at least one device descriptor.

23. The smart card system of Claim 19 wherein the at least one alternate descriptor comprises at least one configuration descriptor.

24. The smart card system of Claim 19 wherein the at least one alternate descriptor comprises at least one interface descriptor.

25. The smart card system of Claim 19 wherein the at least one alternate descriptor comprises at least one endpoint descriptor.

26. The smart card system of Claim 19 wherein said integrated circuit further comprises at least one memory connected to said processor for storing the at least one default descriptor and the at least one alternate descriptor.

27. The smart card system of Claim 19 wherein said transceiver comprises a universal serial bus (USB) transceiver, and wherein said host device and said processor operate in a USB mode.

28. A method for operating a smart card comprising:
providing at least one default descriptor from the smart card to a host device over a system bus;
cooperating with the host device over the system bus to perform an enumeration based upon the at least one default descriptor; and
providing at least one alternate descriptor to the host device and cooperating with the host device over the system bus to perform a new enumeration based thereon based upon allocations of system bus bandwidth to other devices communicating with the host device over the system bus.

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31. The method of Claim 28 wherein the at least one alternate descriptor comprises at least one device descriptor.

32. The method of Claim 28 wherein the at least one alternate descriptor comprises at least one configuration descriptor.

33. The method of Claim 28 wherein the at least one alternate descriptor comprises at least one interface descriptor.

34. The method of Claim 28 wherein the at least one alternate descriptor comprises at least one endpoint descriptor.

35. The method of Claim 28 wherein the smart card comprises a universal serial bus (USB) smart card.

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APPENDIX B – EVIDENCE APPENDIX
PURSUANT TO 37 C.F.R. § 41.37(c)(1)(ix)

None.

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APPENDIX C – RELATED PROCEEDINGS APPENDIX
PURSUANT TO 37 C.F.R. § 41.37(c)(1)(x)

None.